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> '"When *I* use a word," Humpty Dumpty said in rather a scornful tone, "it means just what I choose it to mean – neither more nor less." (...) "The question is," said Alice, "whether you *can* make words mean so many different things." "The question is," said Humpty Dumpty, "which is to be master-that's all."'
>
> (Carroll 1962: 75)

1 INTRODUCTION

In the wake of the financial crisis of 2007-8 academic as well as non-academic interest in the economic thought of John Maynard Keynes was revived. The notion of a 'liquidity trap', interpreted as a zero bound of the (short-term) nominal rate of interest, is seen as one of Keynes's important and lasting contributions to economic theory and to the understanding of the potential

[1*] I thank Maria Cristina Marcuzzo, Mauro Boianovsky, Volker Caspari, Heinz D. Kurz and Hans-Michael Trautwein for valuable comments and Philip Savage for stylistic advice. This paper is part of a inquiry into problematic aspects of the renewed interest in Keynes's economic thought in the wake of the financial crisis that began in 2007; see Marcuzzo (2011) for a broader account of this topic.

problems of monetary policy.[2] This view of the alleged connection between Keynes, the 'liquidity trap' and the zero bound of the rate of interest is especially prominent in the macroeconomic textbook of Olivier J. Blanchard (2009).[3] Unfortunately, the account given there of a supposed connection between Keynes's analysis in his *General Theory of Employment, Interest and Money* and the zero bound of the rate of interest proves to be unsustainable. In what follows, it will be shown that Keynes did not invent the term 'liquidity trap', that he discussed an effective floor to the (long-term) rate of interest at a positive level and that the zero bound of the (short-term) rate of interest was well known to British economists before the publication of Keynes's *General Theory of Employment, Interest and Money*.

These remarks are organised as follows: The next section gives a sketch of the account concerning the connection of Keynes and the zero bound of the rate of interest, the 'liquidity trap', by Blanchard (2009). In the subsequent three sections the origin of the term 'liquidity trap', the meaning of an effective floor to the rate of interest in Keynes's *General Theory of Employment, Interest and Money* and early references to the zero bound of the rate of interest are discussed. The final section provides some conclusions.

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[2] See Krugman (2007, 2009 and 2011). Actually Krugman (1998) popularised the connection between Keynes, the 'liquidity trap' and the zero bound of the rate of interest in his analysis of Japan's 'lost decade'.

[3] The zero bound of the rate of interest was a topic of Blanchard's textbook since its first edition (1997) together with a discussion of Japan's 'lost decade'. Promotional material for the fifth German edition of the textbook (Blanchard and Illing 2009) drew special attention to it in connection of the need for unconventional monetary policy measures during the financial crisis of 2007–8.

2 KEYNES AND THE 'LIQUIDITY TRAP' ACCORDING TO BLANCHARD

In Chapter 22 of his macroeconomic textbook, Blanchard (2009: 495–9) describes the problem that conventional monetary policy of manipulating the short-term nominal rate of interest is confronted with as soon as this rate of interest has been brought down to zero by increases in the quantity of money. As nominal rates of interest cannot be negative, the central bank has lost its ability to further stimulate aggregate demand and thus increase the level of output by additional decreases in the short-term nominal rate of interest. Thus the zero bound on nominal interest rates makes conventional expansionary monetary policy powerless (see figure 1).[4] Initially the position of the economy is determined by the point of intersection of the *IS* curve and the *LM* curve at point *A*. Expansionary monetary policy may shift the *LM* curve to the right by increasing the quantity of money, say to *LM*'. This results in pushing output to the higher level of *Y*'. But although *Y*' is higher than *Y** it is still far below the natural level of output Y_n .

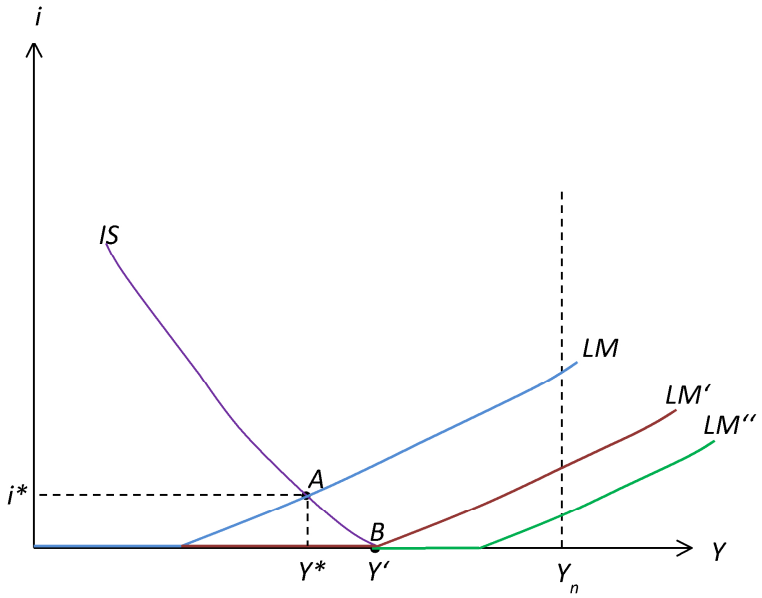

Figure 1: Ineffectiveness of monetary policy

[4] See Blanchard (2009: 498, fig. 22-5) and Blanchard, Amighini, and Giavazzi (2010: 95, fig. 5-11).

But further increases in the quantity of money will not be able to stimulate aggregate demand and shift output closer to Y_n because they will just shift the *LM* curve further to the right , say to *LM*'', without further pushing down the nominal rate of interest that in *B* already has hit its zero bound.

At this zero bound any further increases in the quantity of money will simply be added to existing money holdings because financial investors are indifferent between money and bonds because the opportunity cost in terms of interest forgone of holdings money is zero (Blanchard 2009: ibid.).

In the course of the exposition the reader is confronted with this remarkable paragraph:

> In short, once the nominal interest rate is equal to zero, expansionary monetary policy becomes powerless. Or to use the words of Keynes, who was the first to point to the problem, the increase in money falls into a *liquidity trap*: People are willing to hold more money (*more liquidity*) at the same nominal interest rate.
>
> (Blanchard 2009: 496; emphases in the original).[5]

These few lines contain three assertions:

- That Keynes coined the term 'liquidity trap'.[6]
- That Keynes referred to a situation in which monetary policy would become ineffective because the nominal rate of interest had fallen to zero.
- That Keynes was the first economist to draw attention to the problem of monetary policy impotence at the zero bound.

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[5] See as well Blanchard, Amighini and Giavazzi (2010: 68).

[6] For this claim see as well Abel and Bernanke (2005: 418), Auerbach and Kotlikoff (1995: 346) and Froyen (1990: 143).

To this can be added a fourth claim as, according to Blanchard, this 'liquidity trap' is the result of indifference between money and bonds on the side of financial investors:

- Keynes referred to a situation in which agents are indifferent between holding money and purchasing bonds because, at the zero bound of the nominal rate of interest, holding money instead of bonds does not incur any opportunity cost in terms of interest forgone.

Unfortunately, Blanchard supplies his readers with no references to the words of Keynes he pretends to use.[7] In what follows, based on Keynes's *General Theory of Employment, Interest and Money* and older textbook literature it will be shown that at least three out of the four claims have to be dismissed as unsubstantiated, while the fourth claim can be shown to be misleading, if not downright invalid.

3 THE ORIGIN OF THE TERM 'LIQUIDITY TRAP'

Neither in his *General Theory of Employment, Interest and Money* nor in his later writings did Keynes use the term 'liquidity trap'. When he discusses the possibility of a lower limit to the rate of interest (more on that below), the expression he uses is that 'liquidity preference becomes absolute' (Keynes 1936: 191) or 'virtually absolute' (Keynes 1936: 207).

This is not the place to offer a comprehensive history of the term 'liquidity trap'.[8] It may suffice to refer to Hicks (1942: 56; 1957: 279) who uses this term as a label for the almost horizontal part of the LM curve that he already had

[7] Neither does he refer the reader to the seminal paper of Krugman (1998) that popularised the idea of interpreting the zero bound of the nominal rate of interest as the liquidity trap.

[8] See Boianovsky (2004) for a comprehensive account of the history of the 'liquidity trap'.

introduced in his paper on 'Mr. Keynes and the 'Classics'' (Hicks 1937: 153). According to Hicks (1957: ibid.) it was Robertson who introduced the term 'liquidity trap' (Robertson 1940: 34, 35 and 1959, 70-74, 125f).

Robertson (1936: 190; 1937: 434-5, 1940: 19, 35 and 1959, 70-74, 125f) does not focus on the ineffectiveness of actions of the banking system or the central bank to lower the rate of interest. The problem he has in mind is not the effect of increases in the quantity of money but, in contrast, the effect of individual acts of additional saving on the rate of interest: An additional act of saving may not, this is the interpretation that Robertson advances, succeed in lowering the rate of interest because liquidity may become '... a death-trap (from the social point of view) for acts of thrift' (Robertson 1937: 434).[9]

4 THE 'LIQUIDITY TRAP' IN KEYNES' *GENERAL THEORY*

Keynes discusses the possibility of a lower limit of the (long-term) rate of interest in Chapter 15 of his General Theory, dealing with 'the psychological and business incentives to liquidity' and in Chapter 17, analysing 'the essential properties of interest and money' (Keynes 1936: 207 and 233 respectively).[10] In an appendix to Chapter 14 and in Chapter 19 he stresses the fact that as a consequence of such a lower limit of the (long-term) rate of interest reductions in money wages[11] will not be capable of bringing about full employment if this

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[9] Hicks (1937: 154) introduced the horizontal part of the LM curve because he intended to show that even in Keynes's analysis the rate of interest is under the influence of (changes in) 'productivity and thrift' (i.e., shifts of the IS curve) – an influence that does not come into play only if the IS curve intersects the LM in the latter's horizontal part.

[10] See as well Keynes (1936: 172).

[11] According to Keynes these reductions in money wages can be understood as 'monetary management by the trade unions aimed at full employment, instead of by the banking system' (Keynes 1936: 267).

lower limit lies above the level of the rate of interest compatible with full employment (Keynes 1936: 191 and 266).

As the context of his analysis of the causes of such a constellation makes clear, Keynes did not consider a zero bound of the rate of interest. Instead he speaks of a 'low', 'very low' or 'nominal' rate of interest (Keynes 1936: 202 and 207). He points out that a wealth owner considering buying, say, bonds will compare the interest that will accrue to him to the capital loss that might result from future increases in the market rate of interest. He will prefer holding cash to holding bonds if, on the basis of his notion of 'a fairly safe level' (Keynes 1936: 201) of the rate of interest, he expects an increase in the rate of interest such that the ensuing decrease in the market valuation of bonds will outweigh the fixed interest payments. Thus, according to Keynes, the interest-sensitive demand for money, or liquidity preference due to the 'speculative-motive' (Keynes 1936: 197) depends on the degree of divergence of the ruling rate of interest to the expected, 'fairly safe' rate. Therefore, '...uncertainty as to the future course of the rate of interest is the sole intelligible explanation of...' this '... type of liquidity-preference' (Keynes 1936: 201).

This may give rise to the notion of the lower limit of the rate of interest that Hicks in 1957 labelled 'liquidity trap':

> There is the possibility, for the reasons discussed above, that, after the rate of interest has fallen to a certain level, liquidity-preference may become virtually absolute in the sense that almost everyone prefers cash to holding a debt which yields so low a rate of interest. In this event the monetary authority would have lost effective control over the rate of interest.
>
> (Keynes 1936: 207).

But right after raising its possibility, Keynes adds: "But whilst this limiting case might become practically important in future, I know of no example of it hitherto"

(ibid.).[12] Maybe because of this Keynes does not give a numerical value for the lower limit of the rate of interest, although he seems to offer the conjecture that it might arise at a long-term rate of interest of 2 % (Keynes 1936: 202).[13] He ends his discussion with two remarks that to the present-day reader, having witnessed the financial crisis of 2007 at its aftermath, have a very timely ring:

> Indeed, owing to the unwillingness of most monetary authorities to deal boldly in debts of long term, there has not been much opportunity for a test. Moreover, if such a situation were to arise, it would mean that the public authority itself could borrow through the banking system on an unlimited scale at a nominal rate of interest (ibid.).

In accordance with Keynes's analysis of the lower limit of the (long-term) rate of interest, early macroeconomic textbooks, just like Hicks (1937) did in his seminal paper, presented diagrams of the IS and LM curves with a 'liquidity trap', a (nearly) horizontal part of the LM curve, at a positive rate of interest. Very few macroeconomic textbooks combine the exposition of Keynes's notion of the 'liquidity trap' with a numerical value for this lower limit of the rate of interest. But two exceptions may be pointed out: McKenna (1972: 181) presents a diagram with the 'liquidity trap' at a rate of interest of 2 %, while Gordon (1990: 111) assumes a value of 2.5%.[14]

In addition, the macroeconomic textbook of Gordon is quite noteworthy because, when discussing potential 'monetary impotence' - i.e. potential ineffectiveness of monetary policy - it draws a clear dividing line between the

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[12] But see Keynes (1936: 172 and 233) for a different assessment of the probability of a lower limit of the rate of interest.

[13] On the same page he refers to a rate of interest of 4 % as well.

[14] Evans (1969: 349) hints at a value of 'about 2 percent'; see as well Meltzer (1999).

zero bound of the rate of interest and the notion of 'liquidity trap' (Gordon 1990: 185, fn 2):

> A more precise definition of the conditions necessary for monetary impotence ... is as follows: there must be (1) no effect of a change in M^S/P [real quantity of money, I.B.] on the *IS* curve, and (2) the interest rate where the *IS* curve crosses natural real GNP (Q^N), which we can call r^N, lies below the minimum attainable interest rate along the *LM* curve, which we can call r_{min}. When there is no liquidity trap, r_{min} is zero, and (2) is satisfied whenever r^N is negative ... When there is a liquidity trap, the *LM* curve is horizontal at the level of r_{min} and (2) is satisfied even with a normally sloped *IS* curve, as long as r^N is less than r_{min}.[15,16]

As it turns out, Keynes's notion of a 'liquidity trap' is quite distinct from the 'liquidity trap' discussed by Blanchard. The following differences stand out:

- Keynes discussed a lower limit at a *positive* level of the rate of interest,
- Keynes considered the *long-term* rate of interest,
- Keynes's 'liquidity trap' rests on the *uncertainty* of the future movement of the rate of interest,
- Keynes's 'liquidity trap' arises because wealth owners fear *capital losses* that outweigh the fixed interest payments from holding bonds,

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[15] The same distinction, albeit with a slightly different wording, can be found in the ninth edition of this textbook Gordon (2003: 214, fn 5). On the other hand, in contrast to this notion, Gordon (2003: 126-7), referring to the economic problem of Japan in the 1990s, seems to identify the zero bound of the (short-term) rate of interest with the 'liquidity trap'.

[16] Dornbusch and Fischer (1987: 146) mention the possibility of a 'liquidity trap' at both a low positive and a zero rate of interest.

– in Keynes's 'liquidity trap' wealth owners are *not indifferent* to holding money but *prefer* liquidity (holding money) because of this fear of capital losses. [17,18]

These differences may be highlighted by stating that, according to Keynes, on the one hand, the problem is not the fact that the nominal rate of interest cannot be negative but the perceived upper limit of the market valuation of bonds (resting on the notion of a 'fairly safe level' of the rate of interest determining the expected rate of interest) and that, on the other hand, the opportunity cost of holding money does not simply consist of interest foregone but of the difference between a certain interest income and potential capital loss. The problem of a positive floor to the rate of interest arises as soon as the difference between a certain interest payment and uncertain capital loss, the expected net opportunity cost, so to speak, turns negative. Therefore, Keynes's notion of liquidity preference due to the speculative-motive necessarily presupposes a positive rate of interest.

5 EARLY REFERENCES TO THE ZERO BOUND OF THE RATE OF INTEREST

Even if Keynes indeed would have discussed the zero bound of the nominal interest rate and its dire consequences for monetary policy in 1936, he would not have been the first to do so. As Boianovsky (2004; 2011) shows, eminent British economists like Hawtrey and Robertson, as well as Pigou, had already

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[17] In his comments on Krugman (1998), Friedman (1998: 199-200) points out that Keynes had in mind long-term bonds in contrast to one-period bonds and focussed on the preference for holding money rather than long-term bonds because of expected capital losses.

[18] Dornbusch and Fischer (1987: 146) argue that at '... a zero rate of interest, the public would not want to hold any bonds, since money, which also pays zero interest, has the advantage over bonds of being useable in transactions'.

recognised this possibility before the publication of Keynes's *General Theory* – a possibility that can even be traced back to Wickell's first publication on monetary theory (written in the German language) (Wicksell 1987, 239-40).

Hawtrey (1913: 186) mentions as a 'special case' a constellation in which it becomes impossible for banks to fix a rate of interest sufficiently lower than the natural rate of interest by the rate at which the price level is falling. 'What if the rate of depreciation of prices is actually *greater* than the natural rate of interest? If that is so nothing that the bankers can do will make borrowing sufficiently attractive.'

Robertson (1928: 177) clearly recognises that the rate of interest "... is a less effective auxiliary when prices are falling than when they are rising." As "... the bank has yet to be seen which will lend money for nothing or for a negative rate of money interest ... the banking system may be hard put to it to make the money supply large enough, and keep it moving fast enough, to check the fall in price" (ibid.).

Finally, according to Pigou (1933: 213), because "...the actual rate of bank interest cannot fall below nil ... the weapon available to the banks for cancelling real factors that make for *contractions* in aggregate monetary income has ... a restricted scope. If the real factors are sufficiently powerful, it may not be adequate to cancel them. ... The *proper* money rate ... may, in short, be a negative rate, and, therefore, one which it is impossible to introduce."[19]

[19] Ullersma (2003: 11) traces the notion of a zero lower bound on nominal interest rates back to Fisher (1896); but Fisher (1896: 372) does not mention the problem of monetary policy becoming ineffective.

And both Robertson (1928: 178) and Pigou (1933: 213) already had pointed the way out of the impasse of impotent monetary policy: public investment demand (aimed at improvements in infrastructure) and/or public works.[20]

6 CONCLUSIONS

As has been shown, contrary to the depiction in Blanchard's macroeconomic textbook, Keynes did not invent the term 'liquidity trap' and did not make the zero bound of the (short-term) rate of interest, i.e. what nowadays comes under the heading of 'liquidity trap', the subject of his discussion in *The General Theory of Employment, Interest and Money*. Contrary to this zero bound he discussed the possibility of liquidity preference becoming (virtually) absolute at a low but positive (long-term) rate of interest because, depending on a widespread expectation of an increase in the future (long-term) rate of interest, wealth owners may fear capital losses from holding bonds. His notion of a 'liquidity trap' therefore rests on a positive rate of interest being outweighed by a (expected) negative rate of change in the market valuation of bonds. Thus it would be misleading to argue that in the case of Keynes's 'liquidity trap' any increase in the quantity of money is held by the public simply because this does not entail any opportunity cost compared to holding bonds. Instead, according to Keynes, in such a situation wealth owners are on the verge of trying to get rid of their bonds if only they are able to find a counter party willing to take them.

In the history of macroeconomic theory two notions of a 'liquidity trap', an irreducible lower floor to the rate of interest together with 'monetary impotence' as a consequence, can be identified. One is the zero bound of the (short-term) rate of interest, already mentioned more than a century ago by Wicksell; the other is seen to be caused by liquidity preference becoming 'virtually absolute'

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[20] See Boianovsky (2004: 105) on the differences between the view of these economists and Keynes's notion of „absolute liquidity preference' as well as the modern version of the „liquidity trap'.

at a low but positive level of the (long-term) rate of interest as argued for the first time by Keynes three quarters of a century ago.[21]

Glossing over these differences together with offering invalid attributions of economic concepts in the teaching of macroeconomic theory is unfortunate but can easily be avoided.

[21] This is not the place to discuss the theoretical and empirical validity of the arguments Keynes put forth to establish the (potential) existence of an effective floor to the long-term rate of interest at a positive level (see, for instance, Boianovsky 2004, Davidson 1994: 117 and 2009: 40, 204 fn1, Hicks 1939, Kaldor 1939, Robertson 1940, Robinson 1952 and Sutch 2009). Nor is this the place to look into the possibility to reconcile both notions of 'liquidity trap' (see, for instance, Hicks 1937, Boianovsky 2004, Sutch 2009, and Basile, Landon-Lane and Rockoff 2010).

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